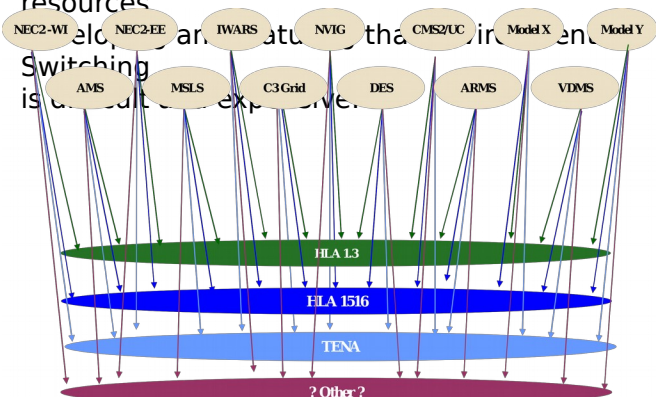


What need is the ProtoCore addressing?

Legacy middleware architectures, used in many simulation environments, do not make use of modern programming practices and can be cumbersome and error prone to use.

More and more middleware architectures are being used within the Army and DoD Modeling and Simulation (M&S) for various purposes.

Existing infrastructures continue to be used for legacy simulations which have invested a lot of resources



Middleware to be used for given exercises is unknown and often open to change. The application developer potentially needs to be an expert user for all existing and emerging architectures: e.g. High Level Architecture (HLA) 1.3, HLA 1516, Test and Training Enabling Architecture (TENA), Distributed Interactive Simulation (DIS), and System of Systems Common Operating Environment (SoSCOE).

More time and money is being spent porting applications between various middleware architectures to enable

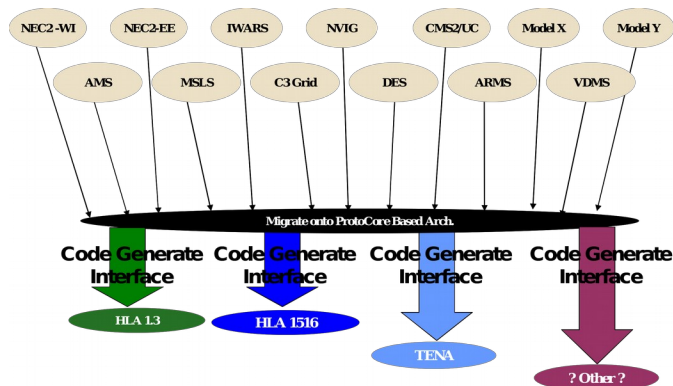
Live-Virtual-Constructive (LVC) Experimentation.

How is the ProtoCore addressing this need?

The ProtoCore provides simulation developers a single Modern Object Oriented (OO) and type safe Application Programming Interface (API) to distributed simulation services.

This API design makes it easier to use and less error prone than the native API of some supported protocols. The type safety allows more errors to be caught at compile time rather than runtime.

The mechanism provided to connect the API to various network protocols is done via code generation from a common Object Model (OM). The underlying plug-in architecture used by the ProtoCore allows an application binary to run over various protocols without modification



Existing tools and applications are preserved as they remain portable and easily deployable. Existing object models are preserved because they can be used with and migrated to newer protocols.

The ProtoCore currently supports the following plug-ins:

- HLA 1.3
- ✓ Simulation Management
- ✓ Object Management
- ✓ Interaction Management
- ✓ Synchronization Points
- ✓ Data Distribution Management (DDM)
- ✓ Multiple Encoding/Decoding Schemes

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- TENA v5.2.2
- ✓ Support for MATREX OM
- ✓ Remote method invocation (future)
- ✓ TENA object models (future)

The ProtoCore currently supports the following platforms

And compilers:

- 32-bit Windows, VC7.1 and VC8.0
- 32-bit and 64-bit Linux variants
- Java 1.5+

Who is benefiting from the use of the ProtoCore Capability?

- RDEC's Component Modellers (BCMS, C3HPM, VDMS, NEC2, AMS, ATC, OASES, CAT Crew Station)
- FCS LSI (Mule)
- ATEC (DCARS II)
- ECBC (CB Sim Suite)
- ATEC/OTC (JANUS, OT-TES, STORM, IMASE, and ExCIS FSA)

Benefits (Why) of using the ProtoCore?

- Provides modern Object Oriented and type safe API to distributed simulation services
- Provides mechanism to connect API to various network protocols in near-term and minimize work of moving applications between them
- Leverage existing software investments and minimize impact
- The MATREX program periodically conducts a hands-on workshop to port applications to ProtoCore
- Provides a path forward for legacy object models and component models into the future

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Acronyms List

AMS	= Air Mobility Server
API	= Application Programming Interface
ATC	= Advanced Test Capability
ATEC	= Army Test and Evaluation Command
C3HPM	= Command and Control, Communications, Human Performance Modeling
DCARS	= Digital Collection and Analysis Reporting System
DDM	= Data Distribution Management
DIS	= Distributed Interactive Simulation
DoD	= Department of Defense
ExCIS	= Extensible C3I Instrumentation Suite
FCS	= Future Combat System
HLA	= High Level Architecture
IMASE	= Intelligence Modeling and Simulation for Evaluation
LSI	= Lead System Integrator
LVC	= Live-Virtual-Constructive
MATREX	= Modeling Architecture for Technology, Research and Experimentation
M&S	= Modeling and Simulation
NEC2	= Network Effects Command and Control
OASES	= Ocean, Atmosphere and Space Environmental Services
OM	= Object Model
OO	= Object Oriented
OTC	= Operational Test Command
OT-TES	= Operational Test - Tactical Engagement System
RDECOM	= Research, Development, and Engineering Command
TENA	= Test and Training Enabling Architecture
VDMS	= Vehicle Dynamics & Mobility Service
SoSCOE	= System of Systems Common Operating Environment
TRADOC	= Training and Doctrine Command

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